

## METHOD AND APPARATUS FOR RAPID THERMAL TESTING

### ABSTRACT OF THE DISCLOSURE

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An apparatus for rapid thermal testing of samples consisting of a single sample chamber in which the samples are preferably arranged circularly around the opening through which a fluid of varying temperature, preferably air, is introduced to provide for rapid, uniform cooling and heating of the samples. The samples are preferably uniformly spaced to allow for uniform air flow. The samples are mounted in slots which are preferably oriented radially outward from the opening. The sample mounts comprise electrical connectors which form a network connected to at least one ohmmeter for measuring the resistance of the samples. The samples preferably comprise test coupons, each with multiple daisy-chained nets of vias or other components to be tested. Also a method for thermal testing of samples consisting of steps to characterize the samples before the test is run. First, the resistance of the samples which correlates to each target temperature is determined, and the time required for the samples to reach that resistance when they are heated or cooled is measured. Then, for reliability testing, the temperature of the samples is cycled between the target temperatures, where the cycle segment durations are given by the times measured in the characterization steps.